

REMARKS

I. REPLY TO OBJECTION TO THE DRAWINGS

The drawings have been objected to as failing to comply with 37 CFR 1.83(a) because they do not show every feature of the invention specified in the claims, specifically claim 3, in that Figure 31 of the drawings show a tapering slot having a smaller width nearest the beam/column interface and a larger width at its opposite end whereas claim 3 includes the limitation that the tapering slot has a larger width nearest the beam/column interface and a smaller width at its opposite end. In reply, Applicant would point out that the specification as filed discloses at page 47, lines 1-20, tapered slots having a smaller width nearest the beam/column interface and a larger width at its opposite end. Accordingly, claim 3 has been amended to correct the inadvertent inversion of the terms “narrow” and “wide” with respect to the ends of the tapered slots.

It is believed that the informal drawings as filed comply with the requirements of 37 C.F.R. § 1.83. It is requested that the drawings as filed be entered into the file as informal drawings and that they be the drawings which form the basis for examination of the application, and that the objection under 37 C.F.R. § 1.83(a) be withdrawn.

II. REPLY TO OBJECTION TO CLAIM 4

Claim 4 has been objected to under 37 CFR 1.75(c) as being improper in form because a multiple dependent claim cannot depend from another multiple dependent claim. In reply to the informality suggested by the Examiner, Applicant has amended Claim 4 to remove the multiple dependency. It is believed that claim 4, as amended, now complies with the requirements of 37 C.F.R. § 1.75(c), and that therefore the objection to claim 4 should be withdrawn.

III. REPLY TO REJECTION OF CLAIMS 1 AND 2 UNDER 35 U.S.C. § 103(a)

A. Summary of Office Action

Claims 1 and 2 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,716,959 (“’959”) to Bernardi (“Bernardi”) in view of U.S. Patent No. 5,660,017 (“’017”) to Houghton (“Houghton”). According to the Office Action, Bernardi ‘959 at column 3, lines 50-51, discloses a steel framework comprising a steel column 12 having a first flange, a second flange, and a web between the flanges, a steel beam 10 having a lower flange 18, and upper flange 16, and a web 22 between the flanges, the beam being welded orthogonal to the first flange of the column, and discloses at column 3, lines 29-49, a separation 28 of the beam flange from the beam web equal to or greater than 3 times the beam flange thickness in length in the beam. Bernardi ‘959

does not specifically disclose that said slot is located adjacent the lower flange of the beam, or that there is a slot located adjacent to both the top flange and the bottom flange. Further, according to the Office Action, Houghton '017 in Figure 7 teaches that it is known to place a separation 52 adjacent to both a top and bottom of a beam. It would have been obvious to one of ordinary skill in the art to place a separation near both the top and bottom flanges, because the slots will help to relieve the stresses in the connection between the beam and column by allowing elongation of the beam. Finally, the Office Action asserts that the duplication of the essential working parts of a device involves only routine skill in the art.

B. Reply To Office Action

In reply, Applicant would emphasize in reply that in order to establish prima facie obviousness it is required: (1) that there be some evidence in the reference or prior art suggesting or showing why a particular modification would be made to a prior art device or process so that the combined teachings of the cited prior art teach all of the claim limitations, *In re Royka*, 490 F.2d 981, 985, (CCPA 1974); and (2) that the references be properly combinable or modifiable, and not teach away from the invention, *In re Gordon*, 733 F.2d 900, 902, (Fed.Cir. 1984). To render the invention of claim 1 obvious, the prior

art references must teach all limitations of claim 1, including the limitation of a beam web slot located adjacent to the bottom beam flange. Likewise, to render the invention of claim 2 obvious, the prior art references must teach all limitations of claim 2, including the limitations of beam web slots located adjacent to the lower beam flange and adjacent to the upper beam flange. Further, to render the invention of either claim 1 or claim 2 obvious, the cited prior art must teach that the beam is welded directly to the column flange. The cited prior art, Bernardi '959 and Houghton '017, alone or in combination, do neither.

Applicant would point out as a factual matter that Bernardi '959 does not disclose the invention substantially as claimed. As admitted in the Office Action, Bernardi '959 discloses only a slot directly adjacent to the upper flange end portion of the beam (col. 2, lines 36-41). Further, Bernardi '959 discloses that its beam is welded to a plate which plate is subsequently bolted to the column flange (col. 2, lines 46-55), and that it "is considered undesirable" to weld the beam directly to the column flange (col. 3, lines 50-56). Bernardi '959 thus teaches away from welding the beam to the column flange.

In complete contrast with Bernardi '959, Applicant claims that the beam is welded to the column flange. Applicant claims a separation of the beam flange from the beam web (i.e., slot) positioned adjacent to the *lower* flange of the beam only, as well as a

duality of slots positioned, respectively, adjacent to the lower flange and to the upper flange of the beam. Further, Bernardi '959 discloses that only the separated portion of the upper beam flange is capable of elongation under load (col. 1, lines 47-51 and col. 2, lines 39-42). What is more, Bernardi '959 trims the separated portion of the upper beam flange to narrow its width to permit the desired degree of elongation (col. 2, lines 42-45). Bernardi '959 does not teach each limitation of Applicant's claim 1 or claim 2, and it teaches away from welding the beam to the column flange as presently claimed. Thus, Bernardi '959 does not establish prima facie obviousness as to present claims 1 and 2.

Houghton '017 is cited in the Office Action for the proposition that it discloses that it is known to place a separation (52) adjacent to both a top and bottom of a beam. In reply, Applicant points out that the feature designated by reference character 52 in Houghton '017 is in fact a conventional weld access hole as disclosed by the phrase "existing weld web-access holes, as indicated by numeral 52" (col. 7, lines 57-58). Contrary to the assertion of the Office Action that the "slots will help to relieve the stresses in the connection near both the top and bottom flanges, because the slots will help to relieve the stresses in the connection between the beam and the column by allowing elongation in the beam," Houghton makes no mention of the access holds (52) being used for stress relief in the beam.

Applicant points out that Houghton '017 does not teach access holes (52) as part of its invention. It merely mentions that conventional access holes are found in beams in existing structures. Houghton '017 does not teach that weld access holes are used in the fabrication (new or retrofit) of its own inventive SMRF connection. In Houghton '017 weld access holes are disclosed only in reference to retrofit or rehabilitation of existing steel buildings (col. 7, lines 36-60) in the context of removing preexisting welds as follows: "Prior to welding the gusset plates to the column flange, the existing restrained full-penetration, single-bevel groove **welds at each beam flange are removed** by back-gouging and coping out the flange material at the location of existing weld access holes" (col. 7, lines 53-58). As such Houghton teaches removal of beam flange to column flange welds, and thus teaches away from welding the beam to the column flange as presently claimed. In fact, in contrast to the present invention as claimed, the beam flanges are not welded to the face of the column flange at all (col. 6, lines 38-40) and traditional full-penetration, single-bevel groove welds between the beam flanges and the face of the column flange are eliminated altogether (col. 7, lines 54-60 and col. 8, lines 30-40). The inventive connection of Houghton '017 employs only relatively small fillet welds as opposed to traditional full-penetration, single-bevel groove welds (col. 8, lines 50-60). Further, Houghton '017 teaches that there is no direct connection between the ends of the

beam flanges and the face of the column flange, but that instead there is in fact a gap (31) between these elements (col. 6, lines 38-40).

Because modification of Bernardi '959 in light of Houghton '017 does not result in the claimed invention as their combined teachings do not teach *all* of the claim limitations of the claimed invention; because being obvious to try is not a legitimate test under § 103(a); and because the Office Action fails to make out a prima facie case of obviousness, Applicant submits that the rejection under § 103(a) of claims 1 and 2 of the pending application have been overcome, and that the rejection should therefore be withdrawn.

IV. REMARKS RE AMENDMENTS TO THE CLAIMS

Claim 3 has been amended to correct the inadvertent inversion of the terms “narrow” and “wide” with respect to the ends of the tapered slots, and claim 3 has been rewritten in independent form including all of the limitations of base claim 1. Dependent claim 4 has been amended to remove the multiple dependency. Claim 5 has been withdrawn without prejudice to prosecuting said claim in a subsequent patent application filed at a later date. The withdrawal of claim 5 was made only to simplify and expedite prosecution and to facilitate allowance of the remaining pending claims. New claim 6 has

been added. New claim 6 includes all of the limitations of originally filed dependent claim 3 and of base claim 2. New claims 7-44 have been added to further particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

No new matter has been added by the amendment of any pending claim or by the addition of any new claim. Support for new claims 7-44 can be found throughout the specification as filed, and more particularly:

For claims 7-10, support can be found, for example, at page 26, line 26 - page 31, line 3 and page 19, line 18 - page 20, line 25;

For claim 11, support can be found, for example, at page 47, lines 1-20 and page 19, line 18 - page 20, line 25;

For claim 12, support can be found, for example, at page 26, line 26 - page 31, line 3 and page 19, line 18 - page 20, line 25;

For claims 13-16, support can be found, for example, at page 21, line 1 - page 26, line 21 and page 19, line 18 - page 20, line 25;

For claims 17-28, support can be found, for example, at page 26, line 26 - page 31, line 3 and page 19, line 18 - page 20, line 25;

For claims 29-30, support can be found, for example, at page 34, lines 10-26, and page 19, line 18 - page 20, line 25;

For claim 31, support can be found, for example, at page 26, line 26 - page 31, line 3 and page 19, line 18 - page 20, line 25;

For claims 32-42, support can be found, for example, at page 21, line 1 - page 34, line 26 and page 19, line 18 - page 20, line 25.

For claims 43-44, support can be found, for example, at page 34, line 1 - 26 and page 19, line 18 - page 20, line 25, and page 21, line 1 - page 33, line 25.

V. REPLY TO REJECTION OF CLAIMS 1 AND 2 UNDER THE DOCTRINE OF NONSTATUTORY OBVIOUSNESS-TYPE DOUBLE PATENTING

Claims 1 and 2 have been rejected under the nonstatutory doctrine of obviousness-type double patenting over claims 12 and 13 of U.S. Patent No. 5,680,738.

Applicant accepts the Examiner's suggestion to file a terminal disclaimer as to claims 1 and 2. A terminal disclaimer in compliance with 37 CFR § 1.321(c) as to any patent granted on the present application is submitted and filed concurrently with this Reply. Accordingly, the rejection of claims 1 and 2 under the nonstatutory doctrine of obviousness-type double patenting has been overcome and should be withdrawn. Applicant submits that claims 1 and 2 are now in condition for allowance.

VI. ACKNOWLEDGMENT OF ALLOWABLE SUBJECT MATTER

Applicant acknowledges that claim 3 as rewritten in independent form including all of the limitations of base claim 1 and any intervening claims is allowable. Applicant believes that new claim 6 which includes all of the limitations of base claim 2 and of dependent claim 3 as originally filed, is also allowable for the reasons stated at page 5 of the Office Action.

VII. CONCLUSION

For all of the above reasons, it is believed that all of the pending claims, specifically, claims 1-4, and 6-44, of the above-identified patent application are now in condition for examination.

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Respectfully submitted,



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